LGB s.r.l.
Via Romania, N° 7
35127 PADOVA Z.I.
☎ ++39 049 6989310
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Rev. 00 del 04/10/2013

# USER'S AND MAINTENANCE MANUAL OF LGB PRODUCTS

LGB s.r.l. thanks you for purchasing its products.

For a safe, effective, efficient and correct use of your LGB product, please read this manual carefully.

This User's Manual is subject to copyright and its content may be subject to changes without prior notice.

This User's manual and the product have been prepared and tested according to appropriate procedures, should misprints or other types occur please inform our business contacts (www.lgb-pumps.it).

LGB s.r.l. assumes no responsibility for improper use of the product, nor for any direct or indirect damages (please read carefully this manual prior to use and take note of all warnings contained in it).

**The electric motor pumps of LGB s.r.l. cannot be used for alimentary and drinking water use, except for special customizations requested by the customer and in compliance with the Decree Ministerial n ° 34 dated 21/03/1973 (eg. pumps used in ice makers, etc.)**

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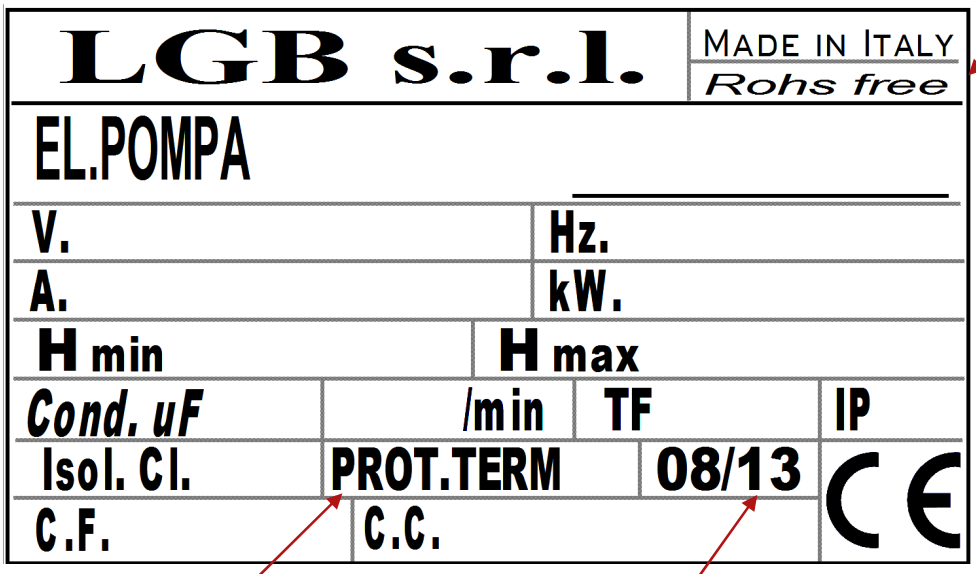
## 1. GENERAL DESCRIPTION OF PRODUCTS

This is to certify that the system of quality management of LGB s.r.l. conforms to the ISO 9001:2008 certification for all fields of activities undertaken, such as design and development of electric motor pumps for industrial dishwashers, sanitary facilities and swimming pools, electric motor pumps used in the medical industry, electric motors for industrial ovens and coffee machines.

## 2. IDENTIFICATION LABELS

Nameplate for Electric motor pumps: *Compliance with the Regulations 2002/95/EC*




*Winding equipped with thermal protector* - *Date of manufacture*

**EL.POMPA** = Product Description; **V**. = Power supply voltage; **A**.= Total absorbed current; **H min**. = Minimum head; **Cond µF** = capacity of the capacitor; **Isol.Cl**. = Isolation class; **C.F.** = Supplier Code; ….. **/min** = rpm; **C.C.** = Customer Code; **Hz.** = Rated frequency; **kW.** = Maximum power consumption ($P_1$); **H max.** = Maximum head; **TF** = Maximum temperature of the pumped fluid; **IP** = Protection grade.

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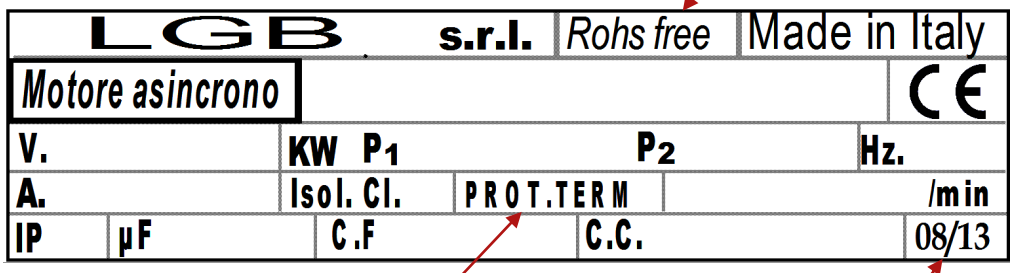
Nameplate for Motors: *Compliance with the Regulations 2002/95/EC*

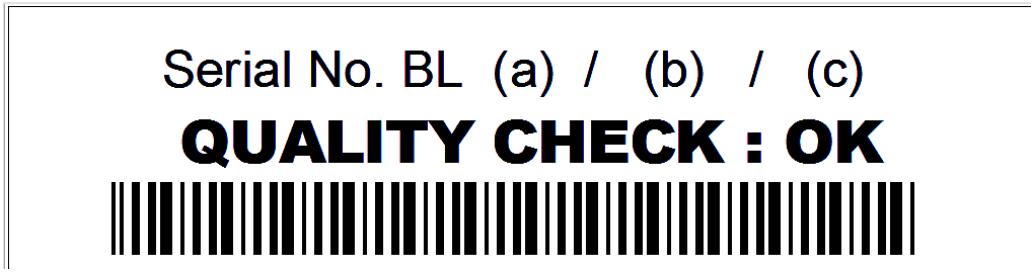



*Winding equipped with Thermal protector -* *Date of manufacture*

**Motore asincrono** = Product Description; **V**. = Power supply voltage: **A**. = Total absorbed current; **IP** = Protection grade; **µF** = capacity of the capacitor; **kW P1** = Rated input power; **Iso. Cl.** = Isolation Class; **C.F**. = Supplier Code; **kW P2** = Rated power at shaft; ….. **/min** = rpm; **C.C**. = Customer Code; **Hz** = Rated frequency.

**In addition:**

In addition to the nameplate, on each pump / motor is applied a second adhesive label bearing the serial number, consisting of production lot (a), the date of production (b) and the ID number of the product (c).




The serial number (repeated with barcode) allows to trace at any time the report testing performed at the end of the production line, carried out on 100% of the components produced.

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## 3. INSTALLATION

3.1. Always check manually the free rotation of the shaft assembly acting on the rear part of the same where it is always present the impression dedicated to act with just a screwdriver;

3.2. Fix the product on a solid base dedicated to ensuring a rigid and vibration free position, as well as an access for visual inspection;

3.3. Fix correctly the piping to the suction inlet and the discharge outlet of the hydraulic body, making sure that the pipes do not have a lesser diameter;

3.4. All the pipes used for the various hydraulic connections must be perfectly sealed;

3.5. All the piping connected to the pump must be firmly supported , the lack of support may lead to the breakage of the pump casing;

3.6. Connect electrically the product by matching the nameplate data
of the product with the power supply voltage that must be the same for voltage and frequency;

3.7. Before starting up the product , check that the pump casing is full of liquid;

3.8. Check that the direction of rotation of the shaft assembly is correct (in three-phase motors it is indicated by the arrow printed on the adhesive label affixed to the product);

3.9. ONLY FOR THREE-PHASE ELECTRIC MOTORS AND MOTOR PUMPS: after each new connection, the lack of phase or voltage , it is possible that the phases get reversed, therefore you have to check the correct direction of rotation. The wrong direction of rotation causes overheating of the motor, likely vibrations, reduces significantly the performance of the electric motor pump and causes probable damage to the pump casing (in the case where the impeller unscrews itself);

3.10 It is not intended the use of the product for fluids other than those of normal use (please abide to the amount of dissolved detergents and rinse aids recommended by the manufacturer of the machine where it is inserted, do not use solutions therefore not indicated with excessive percentage of chlorides and / or Chlorites, **except for specific applications requested to LGB s.r.l**.

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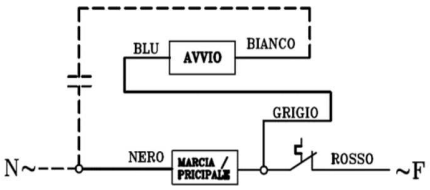
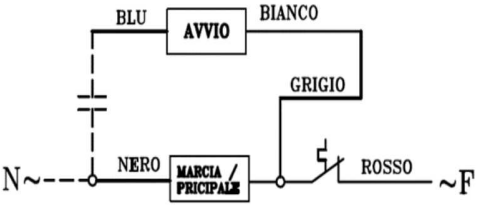
## 4. ELECTRICAL WIRING:

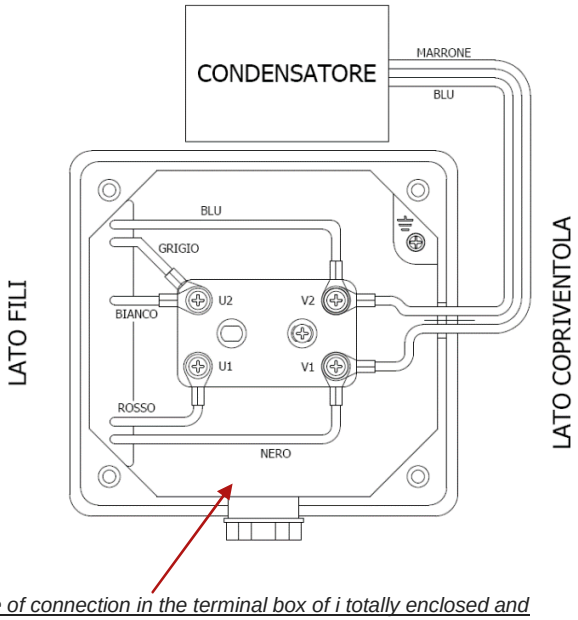
4.1. Standard wiring diagram of electric pumps with single-phase wound stator running in both directions;

**CLOCKWISE DIRECTION WIRE SIDE**



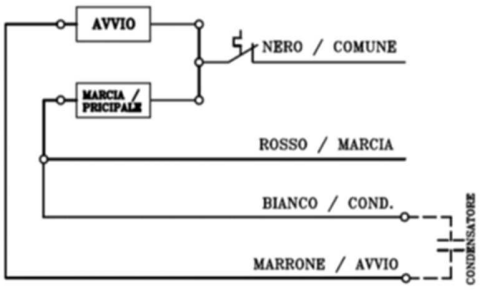

**ANITCLOCKWISE DIRECTION WIRE SIDE**

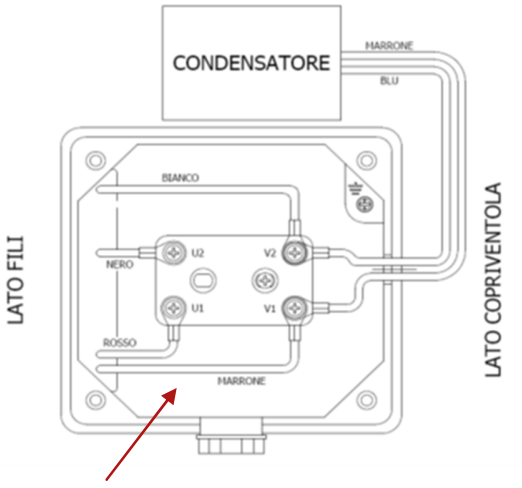



*Example of connection in the terminal box of i totally enclosed and fan cooled motors*

4.2. Standard wiring diagram of electric pumps with single-phase wound stator;




*Example of connection in the terminal box of totally enclosed and fan cooled motors*

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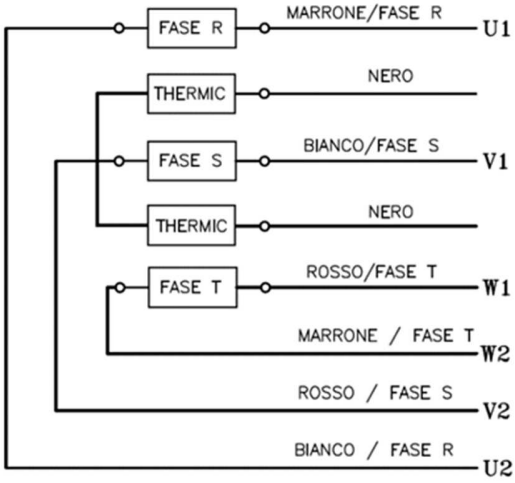
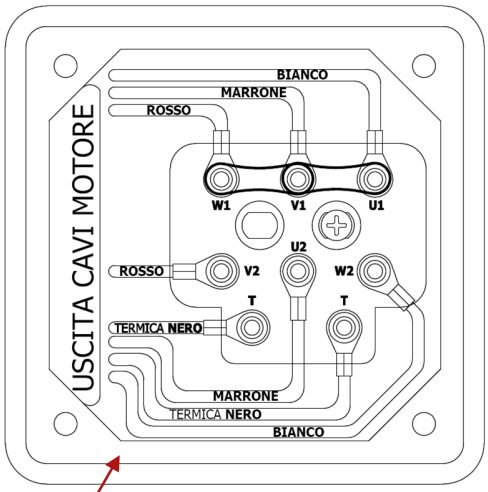
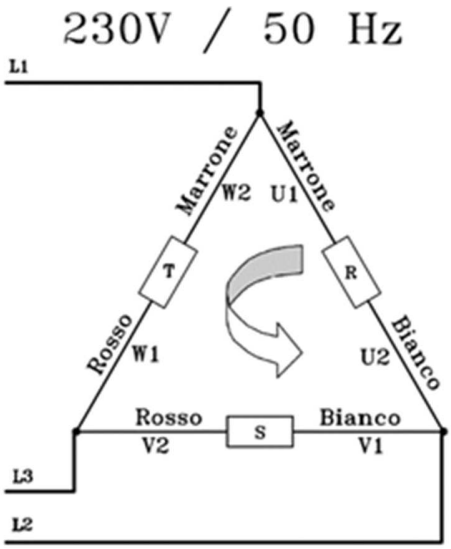
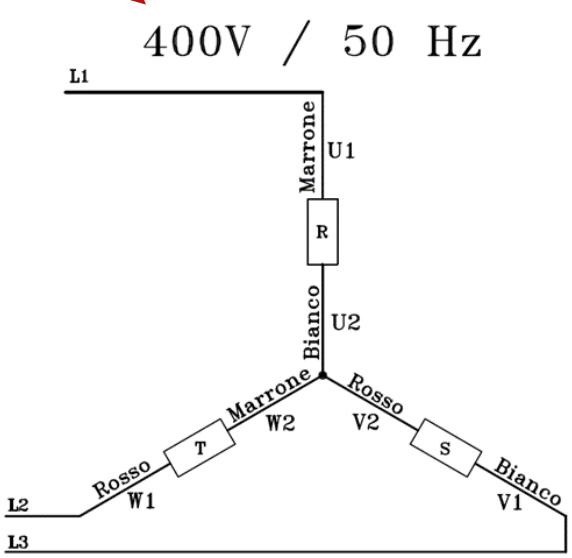
4.3. Standard wiring diagram of electric pumps and motors with three-phase wound stator with independent thermal protector;




*Example of connection in the terminal box of totally enclosed and fan cooled motors (400V connection)*



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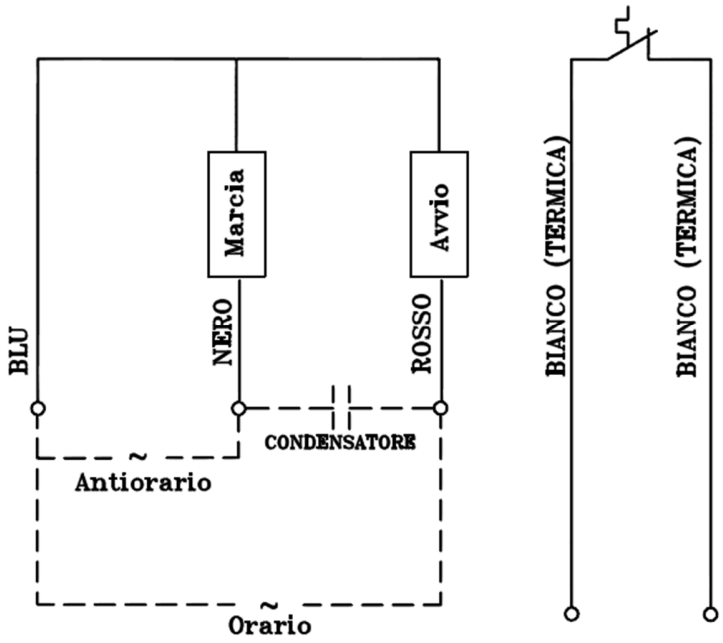
4.4. Standard wiring diagram of motors with single-phase wound stator;




Due to the numerous requests for customization, you can find on the market electric pumps and motors with wiring diagrams different from those standard ones listed above, both for the position and for the colouring of the electrical cables. This is caused by LGB s.r.l. need to unify their products. In any cases of doubt, it is advisable to contact a qualified Technician at LGB s.r.l. (www.lgb-pumps.it).

## 5. ADDITIONAL WARNINGS

The product can be stored in a warehouse under conditions of an environment that is:

5.1. Dry;

5.2. Ventilated;

5.3. Clean (if necessary cover the product or place it in a carton);

5.4. Keep the product away from direct sources of heat;

5.5. During the period of storage, so not to cause the blocking of the mechanical seals, it is necessary to act periodically on the rear of the motor shaft, by rotating it.

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## 6 . INSPECTION AND MAINTENANCE

6.1. Check that the power supply is switched off and that the product cannot restart, even accidentally, before you start working on it;

6.2. Difficult working conditions or occasional uses of the product makes it necessary frequent inspections. To ensure through time the safety, reliability and performance, the product must be subject to maintenance work consisting of actions of verification, control and substitution;

6.3. The inspections are essentially visual, verifying that the components of the product externally and internally have not been dented, corroded and in any case affected in degradation phenomena, and paying particular attention to components made out of plastic material, especially for dents, cracks and breakages. Obviously, the presence of such phenomena must involve the replacement of damaged parts;

6.4. Components subject to wear and tear (e.g. mechanical seals) must be checked periodically;

6.5. ***MECHANICAL SEAL***, it is advisable a use of maximum of 8000 hours, during which it is appropriate to carry out the following measures:

6.5.1. In the system where the product is installed, appropriate filters must be used, necessary to block solids and/or abrasive parts that can position themselves between the sliding surfaces causing damage and consequently causing loss of pressure.

6.5.2. Make sure that the sliding surfaces are constantly lubricated by the pumped liquid, maintaining the proper water level inside the dishwasher tank and ensuring that during normal use an excessive
amount of foam does not form. In the case of partial or missing lubrication, the sliding surfaces of the mechanical seal will overheat and the heat (not removed by the pumped liquid) is transmitted in its entirety, causing a sudden deterioration of the sliding surfaces;

6.6. ***BEARINGS***, it is not indicated a time limit of use, but nevertheless the following steps need to be taken:

6.6.1. Make sure that dust and / or metal chips or other kind do not settle on the motor shields;

6.6.2. Make sure that in the area of shaft bearings no leaks of grease are present, this might be a symptom of excessive temperature attained.

6.7. In the case where the user is not able to perform the ordinary or the extraordinary maintenance, these operations must be carried out by the qualified staff at LGB s.r.l.

6.8. Any type of intervention on the product by unauthorized persons, renders automatically void the performance warranty by LGB.

## 7. REPLACEMENT OF PUMP CASING

7.1. Unscrew the screws / nuts coupling the pump casing's front to the flange;

7.2. Assemble the new pump casing's front, making sure that there are no deposits of dirt on the sealing surfaces of coupling in correspondence with the O-ring;

7.3. At every maintenance operation and control where the pump front casing needs to be removed, it is necessary to replace the O-ring.

## 8. REPLACEMENT OF IMPELLER (The following operations can be performed only by qualified persons).

8.1. Unscrew the screws / nuts coupling the pump casing's front to the flange (as above);

8.2. In the case of the presence of a nut that locks the impeller, unscrew the nut and then unscrew the impeller;

8.3. In the case that the nut is not present and does not lock the impeller, simply unscrew the impeller;

8.4. To unscrew the impeller you must keep locked the shaft assembly by acting in the rear part of the electric pump, taking great care not to damage nor the copper crowns of the wound stator, nor the cooling flaps of the rotor (in the case of electric pumps with in-built motors, slip off the fan cover and the fan, keeping locked the rear of the motor shaft);

8.5. Proceed with the replacement of the impeller and reassemble the pump casing's front as indicated in point n° 8.2.

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**9. REPLACEMENT OF MECHANICAL SEAL** (The following operations can be performed only by qualified persons).

9.1. Mechanical seals are precision components and as such they require a proper and accurate assembly.

9.2. Do not wet the sliding surfaces and the rubber seals of EPDM type with lubricants.

9.3. The seal surfaces, at the time of assembly, must be clean and dry.

9.4. Avoid totally the use of excessive force during insertion.

9.5. Avoid totally that the mechanical seal is subject to shocks or impacts during the assembly.

9.6. Follow the steps indicated in the instructions for the replacing of the impeller and the pump front casing (points n°8 and 9);

9.7. ***IN THE CASE OF ROTATING SEAL ON SHAFT***: slip off the seal to replace, insert the new seal on the motor shaft taking extreme care pushing it in place by tightening the impeller;

9.8. ***IN THE CASE OF ROTATING SEAL ON THE SPIGOT OF IMPELLER***: slip off the seal to replace, place the new seal in the dedicated buffer (DIS0136), moisten the spigot of the impeller with denatured ethyl alcohol and insert the seal until it rests on the bottom plate of the impeller;

9.9. Slip off the fixed seal inserted into the flange with the help of a flat screwdriver, moisten the seal housing (present in the flange) with denatured ethyl alcohol and proceed with the insertion of the fixed seal until its complete settling in place with the appropriate dedicated buffer (DIS0137).

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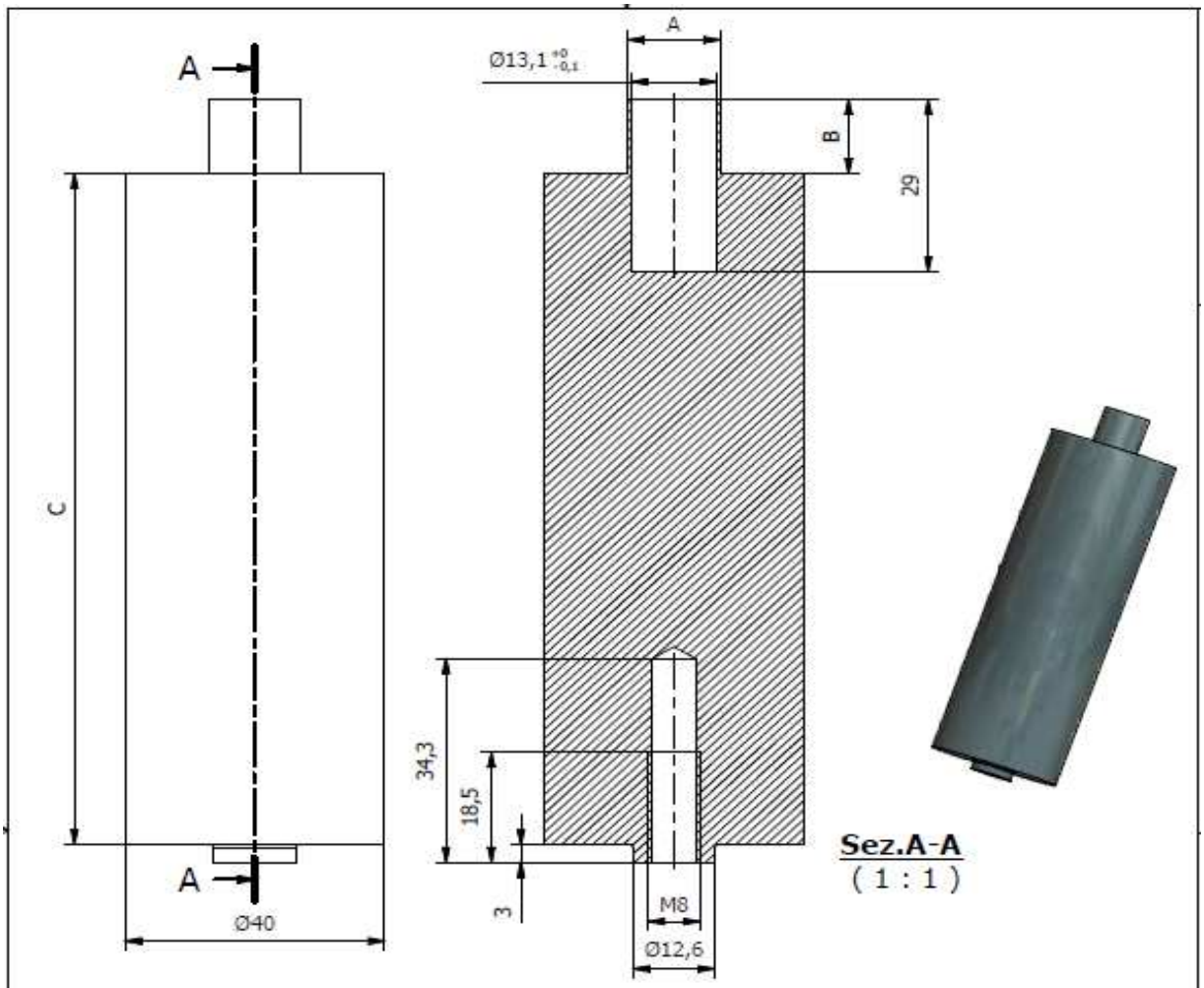




| | ELENCO TAMPONI | | | |
|---|---|---|---|---|
| | TIPO TENUTA | QUOTA "A" (± 0.05) | QUOTA "B" | QUOTA "C" |
| **PRESSA A** | PR/AR 13 | 14.2 | 11 | 113 |
| | PR/AR 13 RID | 14.9 | 15 | 113 |
| **PRESSA B** | PR/AR 13 | 14.2 | 11 | 83 |
| | PR/AR 13 RID | 14.9 | 15 | 83 |

| Rev. | Data | Descrizione | BM/RNP | Disegnato | Approvato |
|---|---|---|---|---|---|
| a | 28-01-13 | Prima emissione | / | M.Mauro | G.Cesaro |

| DOVE NON SPECIFICATO USARE TOLLERANZE UNI EN 22768-1_mK | | | | | | DESCRIZIONE | CODICE | Rev. |
|---|---|---|---|---|---|---|---|---|
| 0.5÷3 | >3÷6 | >6÷30 | >30÷120 | >120÷400 | >400÷1000 | Elenco tamponi inserimento tenute con pressa | DIS0136 | a |
| ±0.1 | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | | | |

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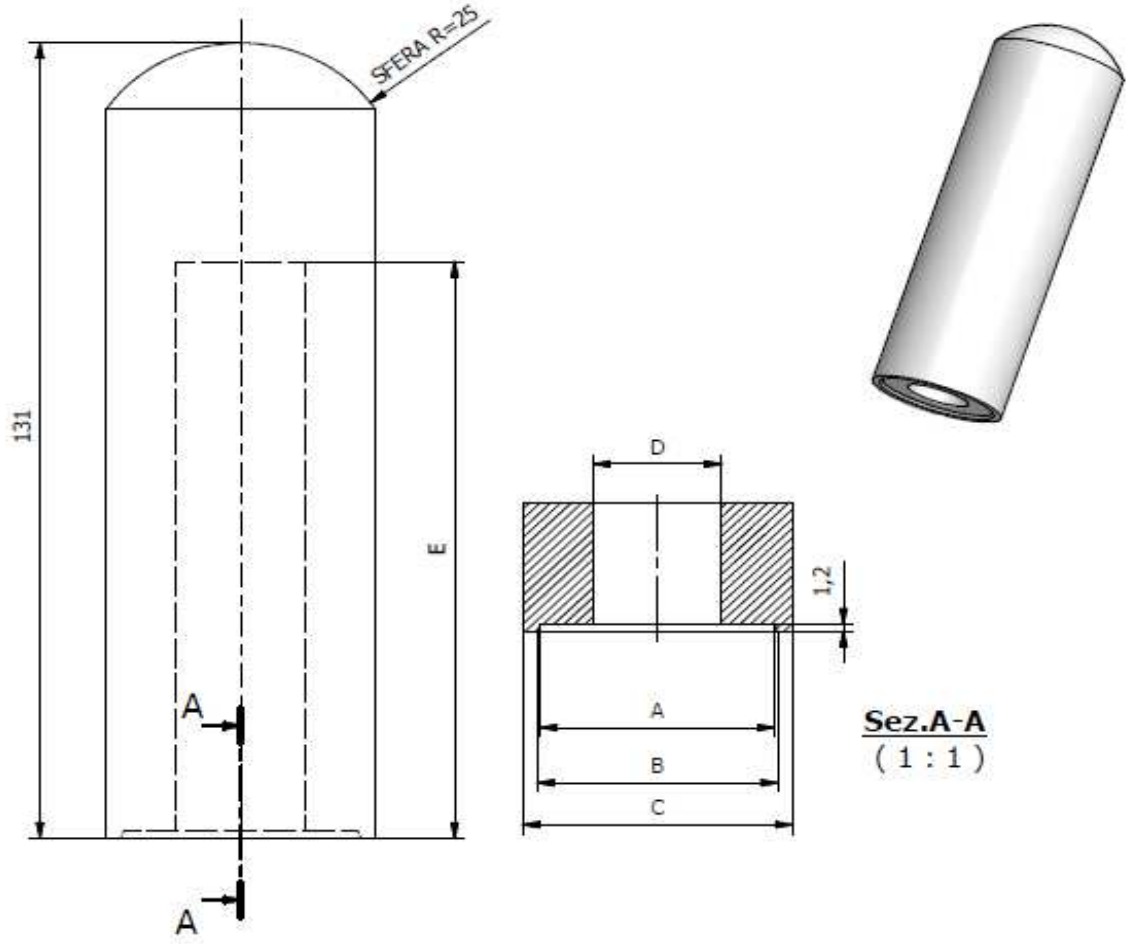


| ELENCO TAMPONI | | | | | |
|---|---|---|---|---|---|
| TIPO TENUTA | QUOTA "A" | QUOTA "B" | QUOTA "C" | QUOTA "D" | QUOTA "E" |
| PF C 42 x 20 x... | 35.5 | 36.5 | 41 | 19.5 | 92 |
| PF C 29.5 x 16 x... | 25 | 26.5 | 29.5 | 12.3 | 103 |
| PF C 26 x 12 x... | 22 | 24 | 26 | 12.3 | 96 |
| PF C 22 x 10 x... | 19 | 19.5 | 22 | 8.3 | 101 |

| Rev. | Data | Descrizione | | Disegnato | Approvato |
|---|---|---|---|---|---|
| a | 28-01-13 | Prima emissione | / | M.Mauro | G.Cesaro |
| | | | BM/RNP | | |

| DOVE NON SPECIFICATO USARE TOLLERANZE UNI EN 22768-1_mK | | | | | | DESCRIZIONE | CODICE | Rev. |
|---|---|---|---|---|---|---|---|---|
| 0.5÷3 | >3÷6 | >6÷30 | >30÷120 | >120÷400 | >400÷1000 | Tamponi inserimento tenute fisse | DIS0137 | a |
| ±0.1 | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | | | |

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## 10. FAULTS AND REMEDIES

IN ALL CASES OF DOUBT PLEASE ALWAYS CONTACT A QUALIFIED TECHNICIAN AT LGB s.r.l. (www.lgb-pumps.it). All products supplied by LGB are subjected to inspection tests, for both the electric and hydraulic parts, in respect of any cases of doubt, the Customer may request the LGB test report by providing the complete serial number present on the nameplate Quality Check that is applied to the product after passing all the tests successfully.

## 11. DECLARATION OF CONFORMITY

All products supplied by LGB s.r.l. comply with the standards, requirements,

Declarations and Certifications specified in the section QUALITY in our company website (www.lgb-pumps.it).

## 12. TECHNICAL SPECIFICATIONS

**In the LGB s.r.l. website (www.lgb-pumps.it) there is present the section "CATALOGUE", where by product type are indicated the technical characteristics and the overall dimensions of our standard products.**

> *The catalogue is purely indicative, since for each model of electric pump /motor already exists various solutions of customization. For proper consultation and any requests we suggest you contact the Sales Department of LGB s.r.l.*

## 13. PRODUCT WARRANTY

For product warranty please refer to the General Conditions of Sale in the LGB s.r.l. website (www.lgb-pumps.it).